

Claim 27, line 10 of page 32, (line 33) before "said", insert - - of - - and delete "support" and replace with - - supports - -;

line 22, (line 45) after "one", insert - - each of - -.

Claim 32, line 17, change "31" to - - 50 - -.

Claim 44, line 1, delete "open frame".

Please cancel claims 10, 24 and 31 without prejudice.

Please cancel claims 37-41 without prejudice in view of the now finally asserted restriction requirement.

Marked-up copies of the above claim amendments as well as clean copies of the claims as so amended are appended herewith.

Please add new claims 48 through 50. Clean copies of those claims 48 through 50 additionally are appended hereto.

### Remarks

By facsimile telecommunication carried out January 22, 2003, the applicants requested any documentation concerning a Notice of the Draftperson Patent Drawing Review and a Notice of References cited. A photocopy of Instructions for Correcting Draftsperson's Objections was received with the Office Action but no other information was received. Additionally, references were cited in connection with the Office Action which were not received in conjunction with a Notice of References Cited.

It is noted that claims 1-36 and 42-47 have been rejected under §112 of the Patent Statute as being indefinite. In applying this objection, the Examiner has indicated that with respect to claim 1, line 32, claim 13, line 33, claim 27, line 33 and claim 41, line 8 (presumably line 3) there is no antecedent basis for "said vertical support".

With the instant response, claim 1 has been amended to describe at line 32 that the first bracket assembly is connectable with a first of said vertical supports, thus bringing the claim recitation into conformance with the utilization of "vertical supports" in the opening paragraph of the claim.

With respect to claim 13 there is no discrepancy, the plural version of the term "support" being present at line 33. With respect to claim 27, line 33 has been amended in the same manner as claim 1. With respect to claim 41 a plural version of the term "support" is present both at line 3 and at line 4 to provide proper antecedent basis. However, it may be noted that the Examiner has required removal of this claim as a component of a final restriction requirement.

It is noted that claims 1-9, 12-23, 26-30, 32-36 and 42-47 have been rejected under the judicially created doctrine of double patenting over U. S. Patent No. 6,302,282 (the '282 patent) in view of commonly owned U. S. Patent No. 5,299,698 (the '698 patent).

For convenience it should be observed that claims in question reappear in divisional status from the application underlying the noted U. S. Patent No. 6,302,282. For convenience, claims 1-8 respectively reappear as earlier presented claims 8-15. Claim 9 is new with the instant application representing the newly added embodiment corresponding with Figs. 16-20.

With respect to claim 12, it also is newly added and corresponds with the noted embodiments represented in conjunction with Figs. 16-20. Claims 13 through 22 reproduce respective claims 16 through 25 of the original underlying application for which restriction requirements were levied in final form.

Claim 23 is newly added and is concerned with the added embodiments represented at Fig. 16-20.

Claim 26, dependent upon claim 1, is directed to the newly added embodiments represented in conjunction with Figs. 16-20.

Similarly, independent claim 27 and dependent claims 28-30 are directed to the signage embodiments of Figs. 16-20.

Claim 33, dependent upon claim 27 is directed to the noted newly added embodiments of Figs. 16-20.

Claims 34-36, ultimately dependent from claim 27, look to the initially presented signage embodiments represented at Figs. 1-15.

The Examiner's attention is now directed to the prosecution history of application serial No. 09/058,402 commonly owned herewith and which matured into the cited '282 patent. In an Office Action mailed February 9, 1999 the Examiner required restriction under §121 of the Patent Statute. The Examiner identified an invention as being a Group I comprising claims 1-7 drawn to a bracket assembly and to a Group II incorporating claims 8-25 drawn to an open frame display shelf assembly. A telephone oral election was made to prosecute the species of the bracket assembly representing claims 1-7. A preliminary amendment adding claims 27-31 was mailed to the Patent Office on January 4, 1999. In a response to the Office Action mailed April 27, 1999, the applicants confirmed the provisional election made, with traverse, to prosecute the invention of Group I, claims 1-7.

In an Office Action mailed August 30, 1999 claims 8-31 were withdrawn from consideration under §121 of the Patent Statute, the groupings being identified as distinct, the restriction requirement being set forth as still being proper and was therefore made final.

Now looking to the rejection based upon double patenting, the Examiner has entered into an analysis based upon the detailed description teachings of the '282 patent and not upon the claims. In this regard, the Examiner has noted that the patent discloses an open frame display assembly having shelves that have forward signs and dividers that meet all the limitations of the claims. The Examiner notes that, in an exemplary fashion, the shelves described in the patent

comprise a plurality of base rods, a plurality of rod beams, a plurality of transverse load rods, sidewalls, a forward and rearward wall each having a receiving (the proper term is "receptor") gap therebetween, bracket assemblies connectable with the respective rear of a sidewall and a pivotal sign as at 50 mounted to the forward wall and a coupler.

Next the Examiner observes that the '282 patent does not teach a plurality of "rods forming parallelogram loops signs mount" between gaps on the shelf. It is submitted that the terms "loops signs" are not described in the claims nor specification of the instant application nor in any of the references. Parallelogram wire formations are described in the instant application and U. S. Patent '282 as part of shelf structuring.

The double patenting rejection is manifestly in error and should be withdrawn.

The levying of a rejection based upon the doctrine of double patenting with respect to a divisional application (which is the type of application at hand) is controlled by the provisions of §121 of the Patent Statute. That section of the Statute provides, *inter alia*: "...A patent issuing on an application with respect to which a requirement for restriction under this section has been made, or on an application filed as a result of such a requirement shall not be used as a reference either in the Patent and Trademark Office or in the courts against a divisional application or against the original application or any patent issued on either of them."

The Manual of Examining Procedure (MPEP) §804.01 interprets that third sentence as follows: "The third sentence of 35 U.S. C. 121 prohibits the use of a patent issuing on an application with respect to which a requirement for restriction has been made, or on an application filed as a result of such a requirement, as a reference against any divisional application, if the divisional application is filed before the issuance of the patent".

As noted from the above analysis of the claim program in the instant application, claims 1-8 and 13-22 were directly imported from the parent application to the instant application in consequence of the Examiner's invocation of a restriction requirement. Without question, those claims are immune from a double patenting rejection and the United States Patent Office and the Examiner are without jurisdiction to as much as suggest such a rejection. Stated otherwise, the Examiner has no authority whatsoever to levy this rejection because of the prohibition of §121 of the Patent Statute.

The Examiner's attention next is directed to §804 (b) (1) of the MPEP concerning obviousness-type non-statutory double patenting. That section provides in part:

"In determining whether a non-statutory basis exists for double patenting or a double patenting rejection, the first question to be asked is – does any claim in the application define an invention that is merely an obvious variation of an invention claimed in the patent?..." (emphasis added). In the above noted analysis provided by the Examiner, no attention was paid

whatsoever to the claims of the asserted '282 patent. All of the claims in that patent are concerned with a highly unique bracket assembly and nothing else!

Of the above identified claims which were not directly imported from the parent application, all are concerned with a shelf assembly or display shelf system and not with a unique bracket.

With respect to claim 23, this claim, looking to the added signage and not to brackets, is dependent upon originally imported claim 13 which, as described above, cannot be the subject of a doubling patent rejection.

Similarly, claim 26 is dependent upon claim 1 which was directly imported from the parent case as a consequence of a restriction requirement. Claim 26 looks to an overhead visual display and has nothing to do with the claims for brackets as provided in the '282 patent.

Independent claim 27 is directed to a display shelf system which is aligned with claim 1 which was directly imported from the underlying parent application. Note that the claim incorporates recitations for: base rods, rod beams, forward wall forming rods, rearward wall forming rods, first side load transfer rods, second side load transfer rods, a first bracket assembly and a second bracket assembly. With those recitations from originally imported claim 1 there are three signage elements added. The claim in no way expands upon the claim program of the '282 patent.

Claim 28, dependent upon claim 27 describes that the lower-most shelf has a greater depth than the other shelves. It is fully consonant with the restriction requirement levied.

Claim 29, also dependent upon claim 27 describes that the bracket assemblies, which are generically recited, support shelf surfaces at select acute angles. The claim doesn't describe that the bracket assemblies are adjustable, which is the sum and substance of the claim program allowed and present in the '282 patent.

Claim 30, dependent upon claim 27 describes that the shelves have merchandise divider assemblies and that each sign support is formed of discrete subassemblies. The claim has nothing in it which would expand the time frame of the invention claimed in the '282 patent.

Claim 33, also dependent upon claim 27 describes the overhead signage of the embodiment of Figs. 16-20. The claim does not look whatsoever to adjustable brackets and in no way, directly or by implication, would expand the timewise extent of the claim program of the '282 patent.

Claims 34 through 36 stem for dependency from the above-described claim 27. All are imported verbatim from earlier restricted claims of the '282 patent. In this regard, claim 34 repeats either claims 9 or 21 of application underlying the '282 patent. Claim 35 repeats either claim 10 or 23 of the application resulting in the '282 patent. Claim 36 repeats either claim 11 or 23 of the '282 patent.

Finally, claims 42-47 are imported directly as a consequence of the restriction requirement on the application underlying the '282 patent. These claims clearly fall directly within the prohibition of §121 of the Patent Statute.

The applicants have utilized the term "consonance" in the above discussion. That term refers to a maintenance of the original rationality in imposing a restriction requirement upon an applicant. In a subsequent divisional application the divisional claims, if amended or added, may not represent an elongation in time of the exclusive use of subject matter represented by the claims in the parent patent. For the present situation, the claims of the parent patent were limited to a unique bracket and that is all. A test provided in the MPEP at the noted section is set forth as follows:

"Any obviousness-type double patenting rejection should make clear:

(A) The differences between the inventions defined by the conflicting claims-a claim in the patent compared to a claim in the application; and

(B) The reasons why a person with ordinary skill in the art would conclude that the invention defined in the claim in issue is an obvious variation of the invention defined in the claim of the patent." (emphasis added)

The Examiner has not applied that test and has not so much as considered the claims in the parent application and patent in conjunction with the claims now in controversy.

The issue at hand was somewhat recently considered by the Court of Appeals for the Federal Circuit in "Applied Materials Inc. v. Advanced Semiconductor Materials", 98F 3rd 1563, 40 USPQ 2d 1481 (Fed Cir 1996). Note the following commentary of the majority opinion:

We take note that the history of these patents shows several refilings, amendments, and continuations-in-part, ...  
40 USPQ2d at 1484

The purpose of the rule against double patenting is to prevent an inventor from effectively extending the term of exclusivity by the subsequent patenting of variations that are not patentably distinct from the first-patented invention.... Thus a patentee can not obtain a later patent for the same invention that has already been patented. Nor can a patentee obtain a later patent for an obvious variant of the invention claimed in the earlier patent, unless the patentee disclaims the term of the later patent beyond the expiration of the earlier one....  
40 USPQ 2d at 1484

A restriction requirement does not prohibit subsequent amendments to the claims. As discussed in Texas Instruments, Inc. v. U. S. Int'l Trade Comm'n, 988 F. 2d 1165, 1179, 26 USPQ 2d

1018, 1029 (Fed. Cir. 1993), the examiner's demarcation among the separate inventions should be preserved. However, even if such consonance is lost, double patenting does not follow if the requirements of §121 are met or if the claims are in fact patentably distinct.... In this case consonance was not violated, for the process claims remained in separate patents from the apparatus claims although the scope of the process claims was modified.

40 USPQ 2d at 1484

See generally "Chisum on Patents" Vol. 4 §12.05 and the associated October 2001 Cumulative Supplement.

The Examiner has brought U. S. Patent No. 5,299,698 by Gay, entitled "Open Frame Rack Assembly" (the '698 patent) into his discussion as to double patenting. It has been indicated that it would have been obvious to provide the shelf of the '282 patent with "parallelogram loops signs" as taught by '698 patent. The '698 patent has no bearing with respect to a double patenting assertion as to the original claims for which a restriction requirement was levied and which are imported directly into the instant application, as well as those amended claims which reside in consonance with the restriction requirement. As indicated above, the terms "parallelogram loops signs" are not understood. The terms "parallelogram loops" appears only in one dependent claim, claim 5, which was directly imported to this application as a consequence of a restriction requirement. There is no recitation in any of the claims combining a parallelogram loop with a sign. It might be pointed out further that the '698 patent looks to an integral rack assembly which stands alone, as opposed to the instant invention which looks to a shelf assembly which attaches to conventional vertical uprights or standards. In effect, the '698 patent describes a quite unique rack structure with shelves which are integrated therewithin, while the instant application describes a quite unique shelf assembly. By contrast, the '282 patent claims a very unique bracket structure. The only occasion wherein components of that bracket structure are a component of a claim in the instant application is concerned with claims 13 -17 which were present as respective claims 16-20 of the parent application and for which a restriction requirement was levied and which have been directly imported into the instant application. As noted above, a double patenting rejection of those claims is prohibited by statute. Claims 15-17 have been amended in their opening paragraph to correct a typographical error. In that regard, the term "bracket" has been changed to "open frame display shelf" in maintaining proper antecedent basis with respect to the claims from which they depend. Of those claims, claim 13 incorporates detailed shelf assembly recitations while, in contrast, the claims of the '282 patent do not.

At page 5 of the Office Action the Examiner has indicated that claims 10, 24 and 31 would be allowable if rewritten to include all of the limitations of the base claim and any

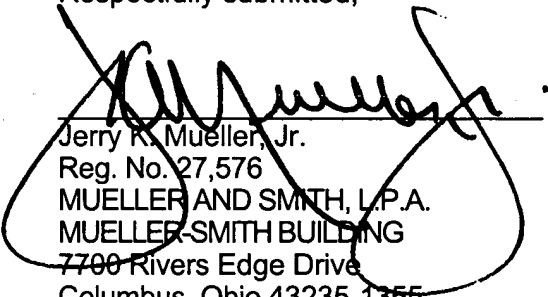
intervening claims. Those claims now are cancelled and respectively reinserted as claims 48-50. In the Office Action Summary the Examiner also indicated that claims 11, 25 and 32 were objected to. Presumably, inasmuch as these claims are dependent upon those allowed claims, they also would be deemed allowable. Those claims have been amended for dependency upon appropriate ones of claims 48-50.

Claim 27 has been amended additionally at line 12 to provide a grammatical correction. In this regard, the claim is not amended in view of the prior art but to clarify the coupling of the sign support assemblies .

Amendments to the specification have been made to insert proper citations to the parent application and to correct grammatical error. As of the present writing, the applicants are unaware of any requirements for drawing correction. If such requirements are present, they should be communicated to the applicant's attorney.

In view of the foregoing remarks, wherein the claim program is seen to be in proper form for allowance, issuance of a Notice of Allowance respectfully is solicited.

Respectfully submitted,



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MARKED-UP SPECIFICATION  
APPLICATION NO. 09/954,464

PAGE 1

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a Continuation-in-Part of United States Application Serial Number 09.058,402 entitled "Open Frame shelf Assembly" filed April 9, 1998, now United States Patent No. \_\_\_\_\_ issued \_\_\_\_\_ 6,302,282 issued

5 October 16, 2001.

BACKGROUND OF THE INVENTION

Shelving is widely employed in the retail merchandising of products. Where merchandise is both stacked and displayed on shelves for direct access by the customer, a number of design considerations for the display technique come to bear. The shelving should be both aesthetically pleasing and exhibit an openness permitting both a desirable customer visualization of the product and an open ease of manual access to it. Such criteria usually call for a cantilevered structure extending to an aisle from upstanding mounts located at each end of a display bay. Very often, the products supported for display, collectively, are relatively heavy. For instance, caulking gun refills, paints, and the like can require a shelf structural capability for retaining about 400 poundsworth of merchandise. Such requirements have in the past led to solid shelf structures evidencing quite robust structuring with size and bulk militating against desirable aspects of customer access and the aesthetics of customer visualization.

BRIEF SUMMARY OF THE INVENTION

Page 3 and 4

The open frame shelf assemblies each are formed with walls positioned at each of the four sides. These walls are configured having receptor slots into which merchandise retaining components such as U-shaped guideways and the like may be inserted. The receptor gaps are accessible from either side of the shelves. In this regard, the shelves may be mounted with the sidewalls facing downwardly or upwardly at the desire of the user. To provide for this reversible arrangement, one adjusting component, that carrying the hooks, is switched from one side of the shelf to the other.

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The shelving assembly also features a sign mount which is connectable with the forward wall and which contains two couplers and a sign engaging surface. The entire mount may be rotated or tilted in correspondence with the tilt or attitude of the shelf itself. Thus, the tilting signage may be provided to accommodate low or high positioned shelves as well as shelves which have been tilted either upwardly or downwardly.

A further feature of the invention provides a display shelf system wherein a plurality of pivotally mounted sign support assemblies are employed to carry discrete product identifying visual patterns. These support assemblies are each pivotally suspended from the forward region of a next upwardly adjacent merchandise carrying shelf and each visual pattern identifies the product which is represented by the visual pattern covering it. With the arrangement, more product carrying shelves advantageously may be employed and the compilation of the displays creates a highly pleasing visual collage effect. The angular orientation of the support assembly is adjustable by the retailer to provide an optimized visualization of the display surfaces with respect to the eye station of the shopper confronting or passing the display system.

~~Another feature of the invention is to provide a method for displaying a plurality of merchandise items having a common functional utility and associated with a plurality of discrete product identifying visual patterns comprising the steps of:~~

- ~~(a) providing first and second vertical supports spaced apart a bay width;~~
- ~~(b) providing a plurality of shelves connectable with the first and second vertical supports from uppermost to lowermost, each comprising a support surface for supporting the merchandise extending a shelf depth between a shelf forward region and wall, the wall having an upwardly disposed sign contact surface, and a shelf rearward region and having a shelf length corresponding with the bay width, extending between first and second shelf sides, a first shelf bracket assembly connectable with the first vertical support and fixed to the first shelf side adjacent the shelf rearward region for effecting the support of the support surface from the first vertical support at predetermined angles with respect to horizontal, a second bracket assembly connectable with the second vertical support and fixed to the second shelf side adjacent the shelf rearward region for effecting the support of the support surface from the second vertical support at predetermined angles with respect to horizontal;~~

- 5 ~~\_\_\_\_\_ (c) \_\_\_\_\_ providing a sign assemblage with each of the shelves from uppermost to next adjacent the lowermost, each sign assemblage having an upper edge and a lower edge spaced therefrom a display width, having an inner surface and an outer display surface, a select display length along the bay width, and the upper edge being pivotally engageable with the shelf forward regions;~~
- ~~\_\_\_\_\_ (d) \_\_\_\_\_ mounting the shelves by the first and second bracket assemblies to respective first and second vertical supports with an inter-shelf spacing selected to enhance the volume of merchandise carried by the support surfaces;~~
- 10 ~~\_\_\_\_\_ (e) \_\_\_\_\_ assigning a bin region specific to each merchandise item at each support surface, each bin region having a bin length along the bay width;~~
- ~~\_\_\_\_\_ (f) \_\_\_\_\_ connecting a sign assemblage having a select display length corresponding with the bin length for each bin region to a support surface forward region of the next adjacent upwardly disposed shelf in alignment with the bin region, and selecting the display width as having a dimension effective to rest the inner surface in freely abutting engagement with the upwardly disposed sign contact surface of a next adjacent lower shelf effective to promote the viewing of the sign assemblage outer display surface from an eye station located in spaced apart relationship to the plurality of shelves; and~~
- 15 ~~\_\_\_\_\_ (g) \_\_\_\_\_ applying a display to each sign contact surface, the display corresponding with that product identifying visual pattern associated with the merchandise item at the assigned bin region.~~

Other objects of the invention will, in part, be obvious and will, in part, appear hereinafter.

- 25 The invention, accordingly, comprises the system, method and apparatus possessing the construction, combination of elements, arrangement of parts and steps which are exemplified in the following detailed description.

#### DETAILED DESCRIPTION OF THE INVENTION

30 Page 8

Sidewalls 90 and 92 are structured substantially identically, a right and left reverse sense being the only difference between them. Accordingly, the discourse turns to the examination of sidewall 92. Sidewall 92 and sidewall 90 are configured to support the base region 82 and associated forward wall 86 and rearward wall 88

in cantilever fashion from upright supports as at 20 and 21. Note that the sidewall 90 incorporates an array of side load transfer rods, certain of which are identified at 100. Rods 100 are arranged in spaced-apart mutually parallel adjacency, and are fixed by welding to the outside pair of rod beams 98. Load transfer rods 100 are bent upwardly in the sense of Fig. 2 to form sidewall extensions, certain of which are represented at 102, which are arranged normally or perpendicularly to the open frame base or surface 82. Welded to the sidewall extensions 102 are a plurality of sidewall forming rods, the uppermost ones of which are seen in Fig. 2 at 104 and 105. Rods 104 and 105 as well as all of the sidewall forming rods may be observed to be parallel to the beam rods 98. Looking additionally to Fig. 3, the outside of sidewall 90 is shown to incorporate two additional sidewall forming rods ~~104~~106 and 107. Rods 104 and 107 are formed as a parallelogramic loop having a forward loop end 111. These rods extend to adjacency with the inwardly-disposed adjusting component 112 of a bracket assembly represented generally at 114. The outer adjusting component of the bracket assembly 114 is shown

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any retail display of them involving a quite substantial number of choices which must be visually presented to the ~~perspective~~prospective customer. Visualization of these distinctive patterns is limited inasmuch as, by necessity, the borders are sold as relatively compact or small rolls which very often are packaged with clear plastic and hung upon rods extending from a vertical wall. The patterns are difficult to discern and the shopper eye station is one which generally will see the bottom layers as well as the upper layers with some amount of perceptual difficulty. With the shelving approach of the invention, direct visual contact is evoked with angulated product identifying visual patterns permitting a direct line visual access from the customer eye station confronting the display. With this approach, the product itself is not seen by the customer but its distinctive identifying visual pattern is observed as it extends over a collection of the product. With the shelving of the invention, substantial amounts of the product may be stored in bins immediately accessible by the customer behind hinged pattern carrying sign assemblages, the patterns of which are dedicated to each product within each bin. In addition to presenting a striking collage of patterns, the shelving system and methodology of retailing achieves a product

density within a given wall space essentially double that of conventional vertical wall hung systems.

Referring to Fig. 16, such a shelving system and display methodology is represented in general at system 360. System 360 is shown to be assembled in association with two vertical supports 362 and 363 which, for the instant embodiment, are components of a shelf support structure represented generally at 364 earlier described as a "gondola". The version illustrated is in the form of an inverted "T" having floor supported base members 366 and 367 supporting the supports or standards 362 and 363. The latter standards or supports are spaced apart a distance which may be ~~termed~~termed a "bay width". Standards 362 and 363 are configured having sequences of slightly long and vertically disposed slots, certain of which are shown respectively at 368 and 369. Of course, the system 360 may be mounted upon wall mounted standards. Support structure 364 structurally retains a plurality of open frame shelves 370-378, shelf 370 being the uppermost in the shelf array and shelf 378 being the lowermost positioned in adjacency with the base member 366. At the outset, it may be observed that a substantial number of shelves are present with a much shorter mutual spacing. The shelves are constructed in the general manner discussed hereinabove. In this regard, the open frame shelves are each configured with a support surface (not shown) for supporting merchandise items. That support surface extends ~~between~~between from a shelf forward region including a forward wall as shown in general respectively at 380-388. Each shelf has a shelf length corresponding with the bay width which extends between

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shelf sides 390a, 390b-398a, 398b. Each shelf 370-378 extends between a forward wall at respective forward regions 380-388 to a shelf rearward region shown respectively at 400-408. The shelves, as before, are supported in an angularly selected orientation by virtue of their coupling with paired bracket assemblies as described above in connection with figs. 3, 4, 7-8, and 14-15. Those brackets, supporting shelf sides 390a-398a, are shown respectively at 410a-418a.

MARKED-UP CLAIMS  
APPLICATION NO. 09/954,464

CLAIMS

1. An open frame display shelf assembly for connection with vertical supports spaced apart a bay width, comprising:

5 at least two spaced apart parallel elongate base rods extending substantially co-extensive with said bay width;

an array of rod beams fixed in transverse relationship to said base rods, and positioned in parallel, mutually spaced relationship a distance selected to provide an open frame surface for supporting merchandise, each said rod beam  
10 extending between a shelf forward region and a shelf rearward region, and said array extending substantially along said bay width between first and second shelf side regions, said rod beams having forward extensions arranged normally to said open frame surface, extending a forward wall height at said shelf forward region, said rod beams having rearward extensions arranged normally to said open frame  
15 surface a rearward wall height at said shelf rearward region;

a plurality of elongate forward wall forming rods arranged in parallel relationship with said base rods and fixed to oppositely disposed portions of said rod beam forward extensions to define a forward receptor gap;

20 a plurality of elongate rearward wall forming rods arranged in parallel relationship with said base rods and fixed to oppositely disposed portions of said rod beam rearward extensions to define a rearward receptor gap;

a plurality of first side load transfer rods fixed to said rod beams at said first shelf side region, having first side wall extensions arranged normally to said open frame surface and extending a first sidewall height;

25 a plurality of first sidewall forming rods arranged in parallel relationship with said rod beams and fixed to oppositely disposed portions of said load transfer rod first sidewall extensions to define a first side receptor gap;

a plurality of second side load transfer rods fixed to said rod beams at said shelf second side region and having second sidewall extensions arranged  
30 normally to said open frame surface and extending a second sidewall height;

a plurality of second sidewall forming rods arranged in parallel relationship with said rod beams and fixed to oppositely disposed portions of said load transfer rod second sidewall extensions to define a second side receptor gap;

a first bracket assembly connectable with a first of said vertical supports and fixed to said first sidewall forming rods for effecting the support thereof from a first of said vertical supports at predetermined angles with respect thereto; and

a second bracket assembly connectable with a second one of said vertical supports and fixed to said second sidewall forming rods for effecting the support thereof from said second vertical support at said predetermined angles.

5                    11.    The open frame display shelf assembly of claim ~~10~~48 in which:

                    said display support has front and back faces, said first channel assembly is formed as a dual channel assembly having a forward channel at said front face and a rearward channel at said rear face and including a channel containing engagement member positioned in spaced relationship from said rearward channel; and

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                    said pivot connector includes a connector channel slidably engageable with said rearward channel and including a stabilizer tab engageable with said engagement member.

                    15.    The ~~bracket~~open frame display shelf assembly of claim 14 in which:

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                    each aperture of said first array of attitude defining apertures and each aperture of said second array of pairs of second apertures has a principal dimension of about one-fourth inch; and

                    said radius distance,  $r_1$ , is within a range of about one to two and one-half inches.

20                    16.    The ~~bracket~~open frame display shelf assembly of claim 14 in which said second angle,  $\theta_2$ , has a value which is a multiple of said first angle  $\theta_1$ .

                    17.    The ~~bracket~~open frame display shelf assembly of claim 14 in which:

                    said first adjusting component includes a third array of attitude defining third apertures regularly spaced apart along a third arcuate locus positioned a radius distance,  $r_2$ , of value less than said radius,  $r_1$ , from the center of said first pivot aperture, adjacent said attitude defining third apertures being symmetrically disposed

25

about third radii of said third arcuate locus located intermediate said first radii and defining said first angle  $\theta_1$ ;

5       said second adjusting component includes a fourth array of pairs of fourth apertures positioned along a fourth arcuate locus, located a said radius distance,  $r_2$ , from the center of said second pivot aperture and disposed co-radially with said pairs of second apertures;

      said second connector is insertable through a said third attitude defining aperture of said third array and a fourth aperture of a given pair within said fourth array aligned with said third attitude defining aperture; and

10       said third connector is insertable through a said third attitude defining aperture of said third array and a said fourth aperture of said given pair of said fourth array.

25.    The open frame shelf assembly of claim 2449 in which:

15       said display support has front and back faces, said first channel assembly is formed as a dual channel assembly having a forward channel at said front face and a rearward channel at said rear face and including a channel containing engagement member positioned in spaced relationship from said rearward channel; and

20       said pivot connector includes a connector channel slidably engageable with said rearward channel and including a stabilizer tab engageable with said engagement member.

27.    A display shelf system wherein shelves from uppermost to lowermost are connectable with vertical supports spaced apart a bay width, comprising:

25       a plurality of shelves, each comprising:

      at least three spaced apart parallel elongate base rods, including two forward base rods extending substantially co-extensive with said bay width;

30       an array of rod beams fixed in transverse relationship to said base rods, and positioned in parallel, mutually spaced relationship a distance selected to provide an open frame surface for supporting merchandise, each said rod beam extending between a shelf forward region and a shelf rearward region, and said array extending to define a shelf depth substantially along said bay width between first and second shelf side regions, said rod beams having forward extensions

arranged normally to said open frame surface extending a forward wall height at said shelf forward region to define sign contact surfaces, said rod beams having rearward extensions arranged normally to said open frame surface a rearward wall height at said shelf rearward region;

5                   at least two elongate forward wall forming rods arranged in parallel relationship with said base rods and fixed to said rod beam forward extensions to define therewith a forward wall;

                  a plurality of elongate rearward wall forming rods arranged in parallel relationship with said base rods and fixed to said rod beam rearward extensions to  
10                  define therewith a rearward wall;

                  a plurality of first side load transfer rods fixed to said rod beams at said first shelf side region, having first side wall extensions arranged normally to said open frame surface and extending a first sidewall height;

                  a plurality of first sidewall forming rods arranged in parallel relationship with  
15                  said rod beams and fixed to said load transfer rod first sidewall extensions to define a first side wall;

                  a plurality of second side load transfer rods fixed to said rod beams at said shelf second side region and having second sidewall extensions arranged normally to said open frame surface and extending a second sidewall height;

20                  a plurality of second sidewall forming rods arranged in parallel relationship with said rod beams and fixed to said load transfer rod second sidewall extensions to define a second side wall;

                  a first bracket assembly connectable with a first of said vertical supports and fixed to said first sidewall forming rods for effecting the support of said  
25                  shelf surface, from a first of said vertical supports at predetermined angles with respect to horizontal;

                  a second bracket assembly connectable with a second one of said vertical supports and fixed to said second sidewall forming rods for effecting the support of said shelf surface from said second vertical supports at said  
30                  predetermined angles; and

                  a plurality of sign support assemblies, each sign support assembly having an upper edge and a lower edge spaced therefrom a display width, having an inner surface and an outer display surface, having an effective length corresponding



with said bay width, and including a connector assembly extending from said upper edge and pivotally engaged with a select one of said forward base rods;

one each of said sign support assembly being pivotally coupled with a said shelf of said system from uppermost to a shelf adjacent said lowermost shelf; and

said sign support assemblies having a said display width of dimension effective to effect contact of said inner surface thereof with the said sign contact surface of a next adjacent lower shelf of said system.

10           32.    The display shelf system of claim 3150 in which:

said display support has front and back faces, said first channel assembly is formed as a dual channel assembly having a forward channel at said front face and a rearward channel at said rear face and including a channel containing engagement member positioned in spaced relationship from said rearward channel; and

said pivot connector includes a connector channel slidably engageable with said rearward channel and including a stabilizer tab engageable with said engagement member.

20           44.    The ~~open-frame~~ display shelf assembly of claim 43 in which:

said coupler periphery is configured having a sequence of notches each with a notch shape for receiving a said forward wall forming rod, and said coupler having a centrally disposed opening extending therethrough; and

said coupler being retainable against said two wall forming rods by a flexible strap retainer extending through said centrally disposed opening and about at least one of said two wall forming rods.